

Program of Delivery Interlocking and Safety Equipment Systems for Valves and Process Control



GST-Systeme GmbH

Table of contents

<i>Table of contents</i>		2
<i>The Company</i>		3
<i>General Information about our Interlocking Device</i>		4
<i>Interlock Series NDL</i>	<i>90° Valves</i>	5
<i>Interlock Series MRL</i>	<i>Multiturn Valves</i>	6
<i>Interlock Series CL</i>	<i>Vessel</i>	7
<i>Control Unit Series MPCU</i>		8
<i>Interlock Series BL</i>	<i>Bolt Lock</i>	9
<i>Interlock Series NVL</i>	<i>Needle Valve</i>	10
<i>Interlock Series ESL</i>	<i>Electrical Switch</i>	11
<i>Interlock Series SL</i>	<i>Shackle Lock</i>	12
<i>Interlock Series SSL</i>	<i>Shackle Lock</i>	13
<i>Interlock Series PL</i>	<i>Pad Lock</i>	14
<i>Interlock Series TE</i>	<i>Time Exchange</i>	15
<i>Interlock Series ASLP</i>	<i>Actuator Locking</i>	16
<i>Interlock Series HL</i>	<i>Hybrid Lock</i>	17
<i>Interlock Series MC</i>	<i>Multi Clasp</i>	18
<i>Accessories Series CKC</i>	<i>Key Cabinet</i>	19
<i>Accessories Chain-Wheel & Key-Extension</i>		20
<i>Accessories Universal Bracket and Adapter</i>		21
<i>Mounting Instructions</i>		22
<i>Reference List for Interlocking Systems</i>		24
<i>Projects</i>		25

GST-Systeme GmbH

The Company

GST-Systeme GmbH was established in the year 1990 with the target, to supply the Gas-, Oil- and Chemical Industries with special products on a high technical quality.

To establish the targets on the market, it was necessary to develop new drafts on basis of existing techniques or to develop them complete new and integrate them with patents into GST-Systeme. Therefore, we use the In-house- Knowledge, which is based on over 20 years experience of scientific research and development.

The result of these drafts is this program of delivery which is also the mirror image of the requirements of our customers. However, even if the tasks are the Separation technique, Gas handling equipments or the Control technique with the area Safety-Equipment-Systems with the keyword: "Mechanical and electrical Interlocking device" – we as supplier and responsible company for these systems keep our promises.

Depending on the international customers, we work very close with other companies together which have the same tasks.

International competitive ability, innovative products which will be further developed on the special requests of our customers is the result of this cooperation.

If you do not know our company yet, do not hesitate to test us and become our customer, who attaches great importance to competence, individual care, commitment and delivery time.

Your team of GST-Systeme

General Information about our Interlocking Devices

Criteria of design

All our interlocking systems are designed under following criterias:

- Reliability
- Availability
- Functionality
- Maintainability
- Installation
- Adjustment
- Fire safe

Full Linear Key-Concept

The linear key assures the most simple operation for the operator in the field since only one “push in” or “pull out” of the key will unlock or lock (no turning).

To this full linear concept dirt, ice or sand will never block the internals in the locking mechanism.

Therefore all interlocking devices are maintenance free during lifetime. A full range of the interlocking systems has successfully passed the certification by TÜV, the German independent safety authority that has developed world’s most stringent tests for Safety Interlocking Systems.

The key is a stainless steel AISI 316 blade with uniquely coded grooves, ensuring that one key only will fit in the key-entry of a corresponding lock; this excludes human errors under all circumstances. This coding principle enables over 2000 unique combinations, which can be easily expand to over 6000.

There are three locations to stick tag plates for the individual tagging.

Material

All the Interlocking devices are manufactured completely in stainless steel AISI 316 or comparable. It is also possible to use other materials.

Certification

All the Interlocking devices can be supplied with material Certificates in according with EN 10 204-2.1 and EN 10 204-2.2.

General Features

- Robust and compact, easy to operate, fire safe
- Resistant to dirt, sand and moisture
- Single hand key insertion followed by automatically locking or unlocking
- Static lock body, therefore the keys remain on same position
- Maintenance free and greased for life
- Internal linear mechanism avoids sticking effect of the key
- A single- and double key execution
- No modification to mount the locks to the valves
- Installation can be done while valve is under pressure
- Optional: Integration of alarm switches; a lock by-pass construction by means of shear pins; status indication lamps; electrical key traps.
- TÜV certified, made of AISI 316 stainless steel

GST-Systeme GmbH

Interlock Series NDL

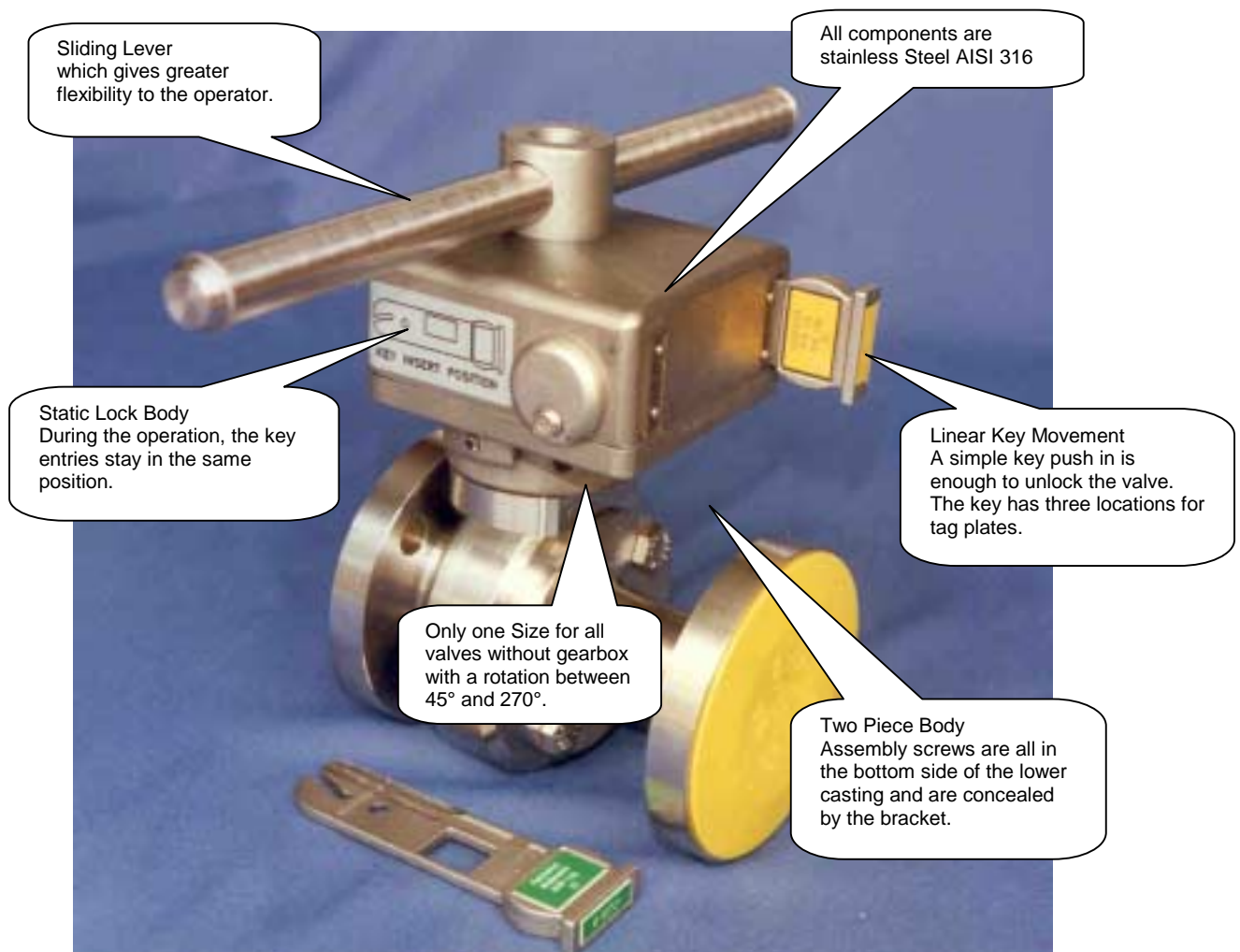
90° Valves

Description

The interlock from the series **Ninety Degree Lock (NDL)** should be used for ball-, plug- and butterfly valves. The NDL can also be used for every kind of valves, switches etc with a rotation between 45° and 270°. The locks can be delivered with single and double key execution. The adaption to the valve will be done integrally without any changes to the valve top work.

The lock body is static; therefore the keys remain on same position. The sliding lever with an adjustable lever length indicates the open or closed position of the valve.

The interlock from the series Ninety-Degree Lock is delivered in one size. Under normal circumstances we can use them for valves up to six inch. For larger valves normally gearboxes are used.



GST-Systeme GmbH

Alzenauerstraße 21; D - 63517 Rodenbach; Tel.: 49 – (0)6184 – 9507-0; Fax 49 – (0)6184 – 9507-100
E-Mail: Info@gst-systeme.de; Internet: www.gst-systeme.com

Interlock Series MRL

Multiturn Valves

Description

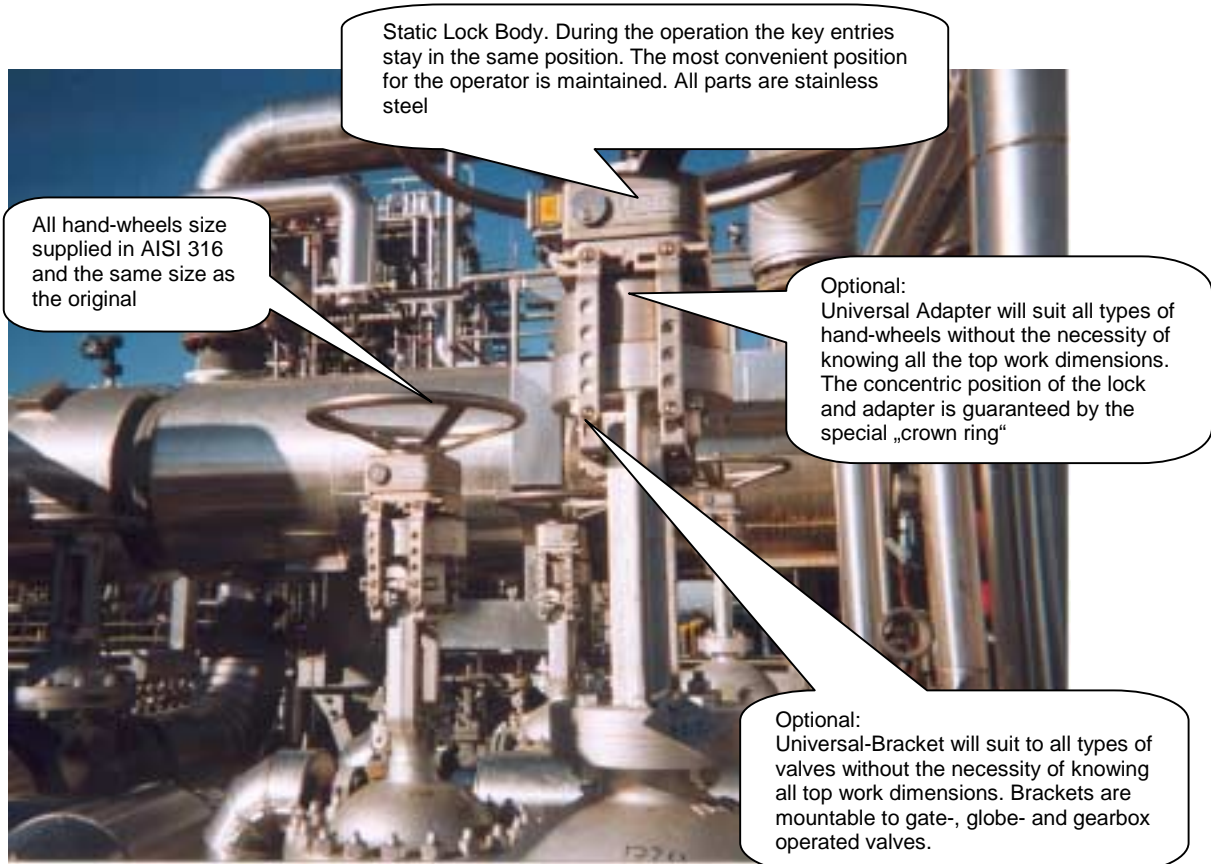
The interlock from the series **Multi Rotate Lock (MRL)** is a lock for multiturn applications like gate- or globe valves with rising hand-wheel or rising stem, butterfly- and ball valves with gearboxes.

A key can be released in either the open or closed position, which ensures the valve is locked in the desired position. Since the number of rotations will vary from valve to valve, this unit is equipped with a field adjustable counting mechanism. Tightening two screws on either side of the lock easily carries out setting. Setting is only possible if the operator is in possession of the special tamperproof-fitting tool. The key comes free between a half hand-wheel turn before and after the set points. For large valves with a gearbox it is possible to use a X-Counter. This means the customer specifies the key free area.

The locks can be delivered with single and double key execution. The adaption to the valve will be done integrally without any changes to the valve top work. The lock body is static; therefore the keys remain on same position.

The interlock from the series Multi Rotate Lock is delivered in two sizes. Under normal circumstances we can use the small one for valves up to three inch. For larger valves normally we use the large one. The size of the lock depends to the geometric data of the drive bush and the size of the stem.

The locks are supplied with a fully AISI 316 hand wheel, which will have the same diameter as the original in order to maintain the correct torque parameters of the host valve.



GST-Systeme GmbH

Alzenauerstraße 21; D - 63517 Rodenbach; Tel.: 49 – (0)6184 – 9507-0; Fax 49 – (0)6184 – 9507-100
E-Mail: Info@gst-systeme.de; Internet: www.gst-systeme.com

Interlock Series CL

Vessel

Description

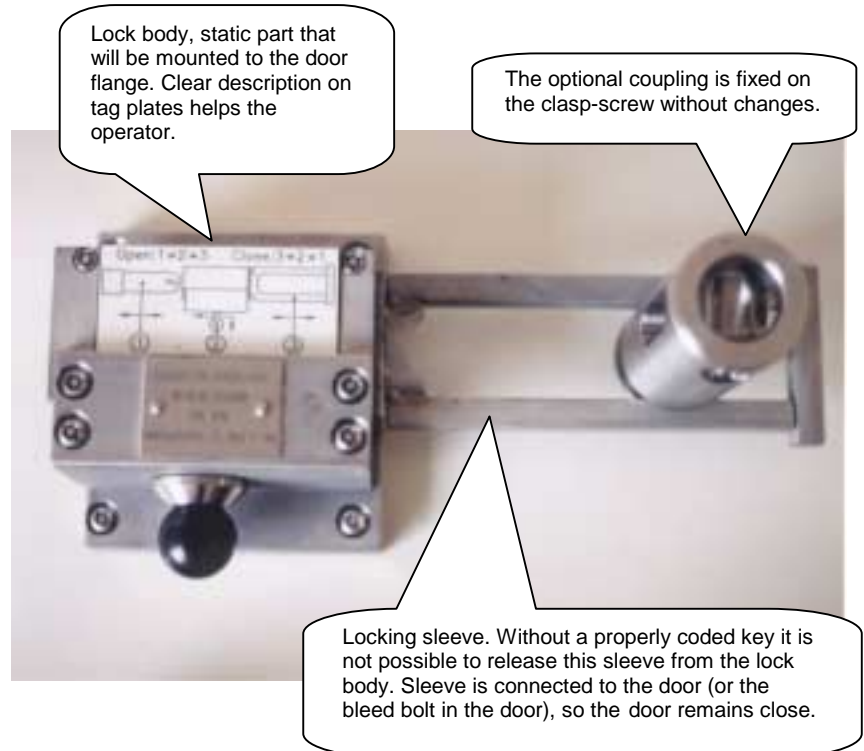
The interlock from the series **C**losure **L**ock (CL) is used for vessels, quick closures, safety doors and fences and can be delivered in single and double key execution. The adaption will be done internally without any changes to the host equipment.

To ensure that a safety door, closure or fence is fully closed before a next operation in a predetermined sequence can be executed safely, the closure lock is inevitable.

Located on the inside of a safety door or fence, to avoid that the operator will be trapped in the hazardous area by door lock, an escape facility can be supplied.

An alternative lock unit can be supplied with a double key system that makes it impossible to lock the door from outside.

For some closures like those manufactured by GD-engineering, the sleeve is directly connected to the bleed-bolt: the bleed bolt can thereby only be unscrewed after release the sleeve from the CL.



GST-Systeme GmbH

Alzenauerstraße 21; D - 63517 Rodenbach; Tel.: 49 – (0)6184 – 9507-0; Fax 49 – (0)6184 – 9507-100
 E-Mail: Info@gst-systeme.de; Internet: www.gst-systeme.com

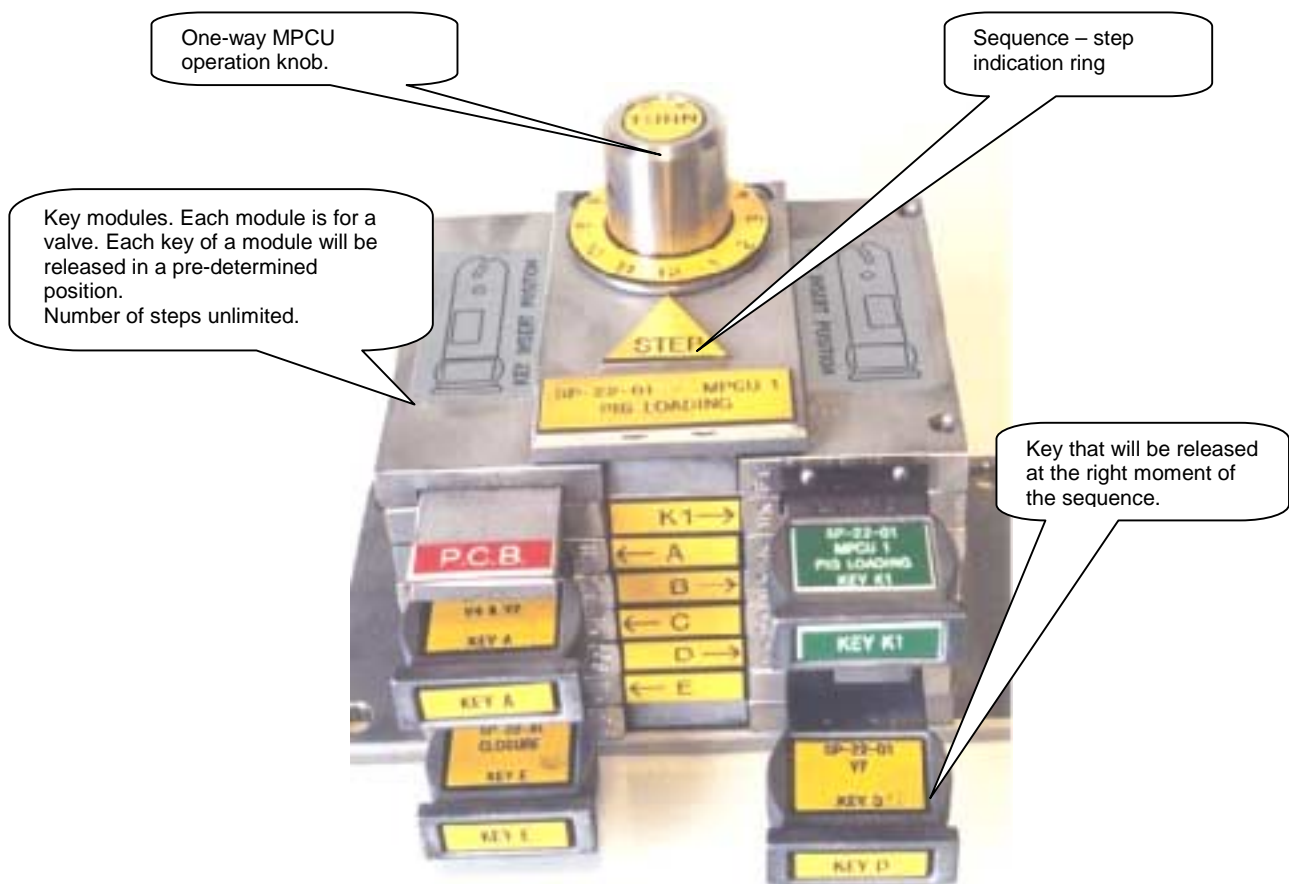
Control Unit Series MPCU

Description

The Control Unit from the **Mechanical Process Control Unit (MPCU)** is a mechanical device, which can be operated only in a pre-determined way. A whole interlocking switch-over-sequence can be programmed into it. All steps necessary to exclude all possible human error can be made only in the way the process engineer engineered.

Since the MPCU is a fully AISI 316 mechanical device, it can very easily be installed local to the (hazardous) plant-installations. The operator does not have to go to the control room each time he wants to have a key.

The MPCU is used for non-linear sequential processes, e.g. batch processes, pig traps procedures, etc. The design of the MPCU is unique modular. In the standard version are 60 steps possible.

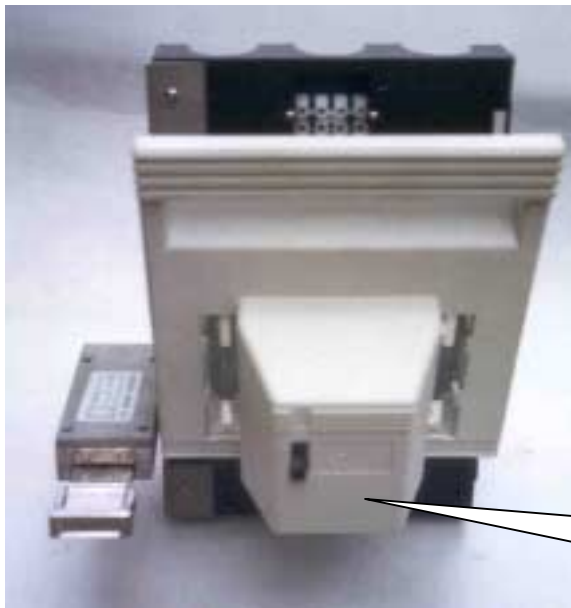


Interlock Series BL

Bolt Lock

Description

The interlock from the series **Bolt Lock (BL)** is suitable for a lot of interlocking tasks. However, fences, doors, gearboxes 90°- and multi turn valves, line blinds, electrical switches can be executed in single, double and multi key type. Bolt Locks are no integral locks like series NDL or MRL. Adapters or modifications must be designed to the host valve or equipment. In combination with these series bolt locks will be used for special applications.



Interlocking of a high power switch with a Bolt-Lock.



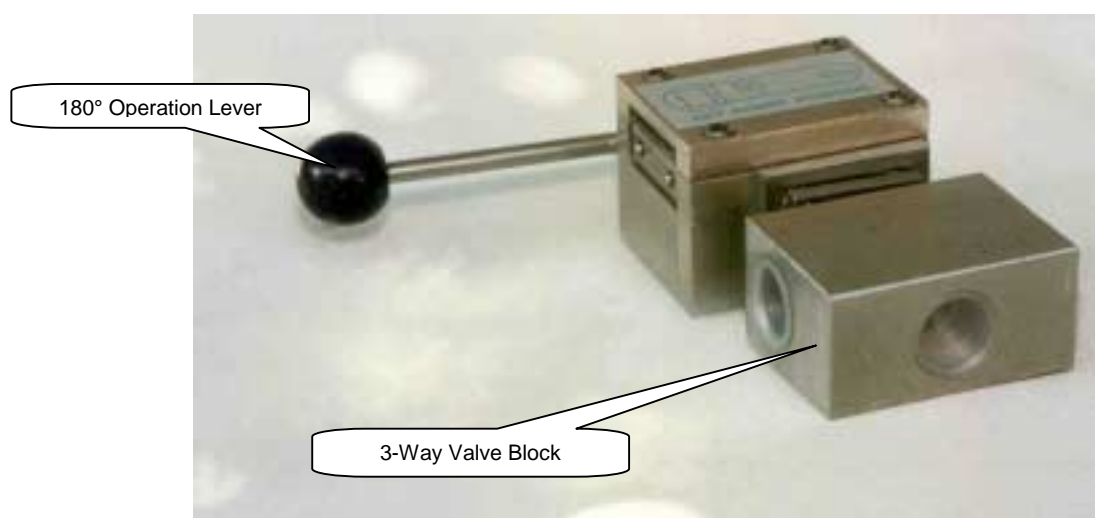
Interlocking at an operating panel of a gas carrier.

Interlock Series NVL

Needle Valve

Description

The interlock from the series **Needle Valve Lock (NVL)** is a lock for multiturn applications like hand operated Needle-, Control-, Flow-, Check-, Metering- and Shut-Off valves, single- or manifold bar in single and double key execution. The adaption to the valve will be done integrally without any changes to the valve top work. The lock body has only two parts, a body and a locking unit to trap / release the key. The fire safe construction has no soft sealing and remains operable at any time after a fire. The simplicity gives optimum strength.



GST-Systeme GmbH

Interlock Series ESL

Electrical Switch

Description

The interlock from the series **Electrical Switch Lock (ESL)** can be mounted to any type of switch. In all case the lock will be mounted to the switch, it is done without modification of the switch housing and therefore it will not jeopardize the explosion proof certification.

The lock is made of stainless steel 316 and can be supplied in single and double key execution, with or without switch, for rotary-, proximity-, inductive-/capacitive-switches, for High-, Medium-, and Low-voltage switches.

With the Electrical Switch Lock it is possible to integrate main power switches on pumps or other electric devices into the interlocking sequence.



GST-Systeme GmbH

Alzenauerstraße 21; D - 63517 Rodenbach; Tel.: 49 – (0)6184 – 9507-0; Fax 49 – (0)6184 – 9507-100
E-Mail: Info@gst-systeme.de; Internet: www.gst-systeme.com

Interlock Series SL

Shackle Lock

Description



The interlock from the series **Shackle Lock (SL)** is a lock for multi turn applications. This type is a low cost solution in case sophisticated locking with the lock series Multi Rotation Lock and Ninety Degree Lock is not required. The SL is available in several sizes that enable locking of all valve sizes. However, interlocking between valves is not possible.

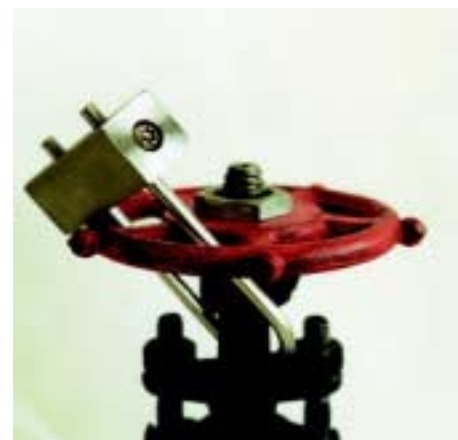
The lock body of the Shackle Lock consists of two main parts only: the body and the shackle. The Lock is secured to the valve by means of a special fitting tool. Optional the Shackle Lock can be delivered with a hole for a padlock. Therefore it is impossible to remove the screw.

The Shackle Lock is available in two different sizes, which depends of the valve size.



Optional:
The Shackle Lock can be delivered with a hole for a padlock. Therefore it is impossible to remove the screw.

Shackle Lock



Interlock Series SSL

Shackle Lock

Description

The interlock from the series **Shackle Sliding Lock (SSL)** is a lock for multi turn applications. This type is a low cost solution in case sophisticated locking with the lock series Multi Rotation Lock and Ninety Degree Lock is not required.

Conditional through the system key, it is possible to integrate the Shackle Sliding Lock into a sequence as the final lock. But take care; no control of the position of the valve is possible. No key is necessary to place the Shackle Sliding Lock at the valve, because the Shackle can only slide into one direction. To pull the shackle out of the lock body the right coded system key is required.

The shackle of the Sliding Lock can be delivered in different lengths; if necessary also other sizes of the lock are available.



GST-Systeme GmbH

Alzenauerstraße 21; D - 63517 Rodenbach; Tel.: 49 – (0)6184 – 9507-0; Fax 49 – (0)6184 – 9507-100
E-Mail: Info@gst-systeme.de; Internet: www.gst-systeme.com

Interlock Series PL

Pad Lock

Description

The interlock from the series **Pad Lock (PL)** is a lock for multi turn valves in combination with a chain and all other applications that can be locked by a normal padlock. This type is a low cost solution in case sophisticated locking with the lock series Multi Rotation Lock and Ninety Degree Lock is not required.

Conditional through the system key, it is possible to integrate the Pad Lock into a sequence as the final lock. But take care; no control of the position of the valve or the other applications is possible.

No key is necessary to close a Pad Lock, because the Shackle can be closed like a normal Pad Lock with a rotary key. For opening the Pad Lock the right coded system key is required.

The shackle of the Pad Lock can be delivered in different lengths and diameters; if necessary also other sizes of the lock are available.



GST-Systeme GmbH

Alzenauerstraße 21; D - 63517 Rodenbach; Tel.: 49 – (0)6184 – 9507-0; Fax 49 – (0)6184 – 9507-100
E-Mail: Info@gst-systeme.de; Internet: www.gst-systeme.com

Interlock Series TE

Time Exchange

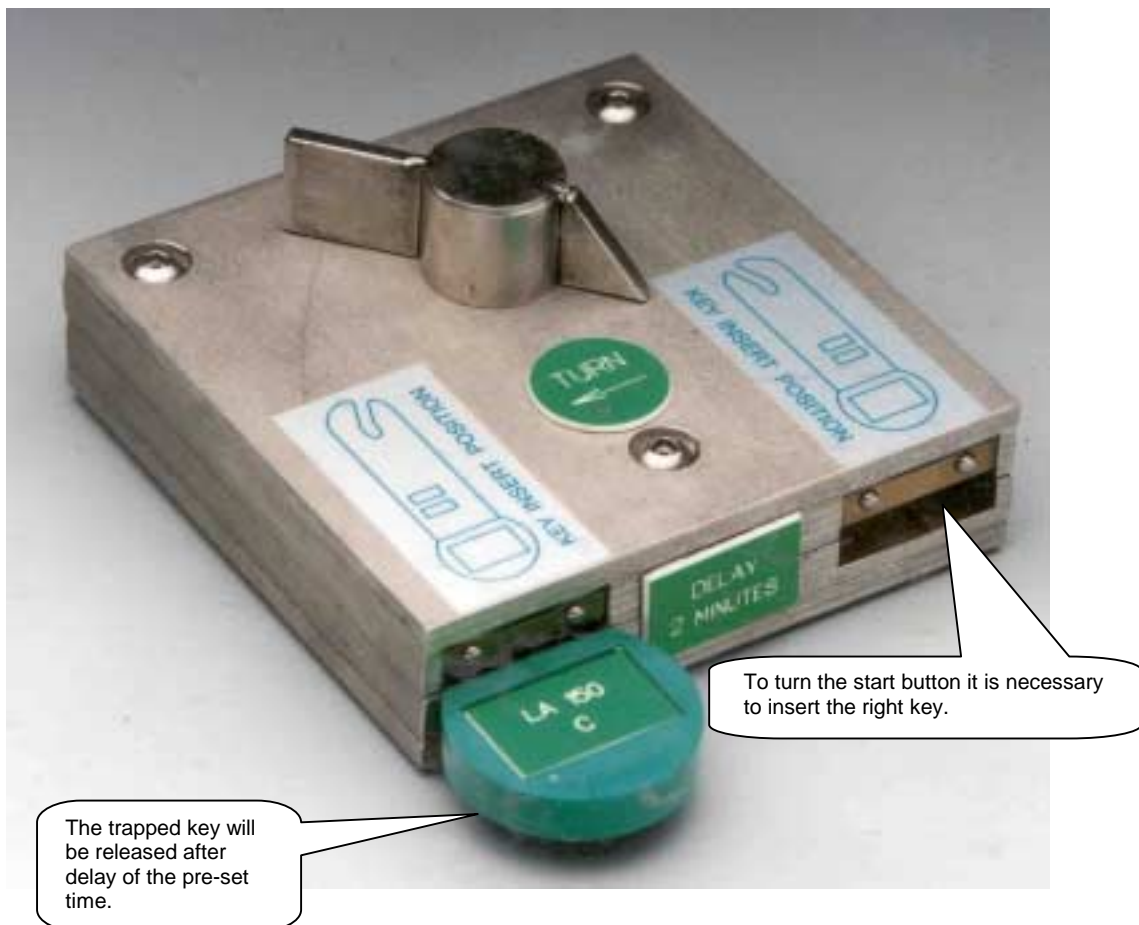
Description

The interlock from the series **Time Exchange (TE)** is a key exchange unit with integrated mechanical timer to control a safety sequence in special processes where a time delay is required. Also available is the electrical Time Exchange, which is called Time Switch Lock Panel (TSLP). To release the trapped key it is required to insert the right free key. Once this key is inserted the timer start button can be turned and the time starts to run. The trapped key will be released after the pre-set time is delayed.

Typical applications are:

- A vessel is being purged or drained for a period of time before the next step in the sequence may start.
- A door could not be opened before the machine stands still.
- The stirring machine of a vessel must run a period of time before the next valve can be opened.

For the way back in the sequence the exchange of the keys will be done directly. The period of time will be adjusted during the assembly in our company.



Interlock Series ASLP

Actuator Locking

Description

The interlock from the series **Actuator Switch Lock Panel (ASLP)** can be used for all kinds of electrical proceeds components as a part of the interlocking sequence. With the actuator Switch Lock Panel it is possible to guarantee the position of the actuated valve or components by using the limit switches of the actuator. So it is very easy to integrate them into an interlocking sequence.

Typical application is the change of an oven to the decoking process.

We also can use a special kind of relay circuit if it is not possible to use the limit switches of the actuator.

At first the keys will be checked in the mechanical unit by their coding. If the right key is insert the actuator can be steered by the pushbuttons of the Actuator Switch Lock Panel and the next key comes free if the electrical proceed component arrives at the new position. During this time all keys are trapped.

The electrical part of the Actuator Switch Lock Panel like electrical circuit, appearance and explosion proof classification will be designed on base of customer's specification.



GST-Systeme GmbH

Interlock Series HL

Hybrid Lock

Description

The lock from the series **Hybrid Lock (HL)** is a single unique lock off device that can lock off ball-, globe-, gate- and gearbox operated valves.

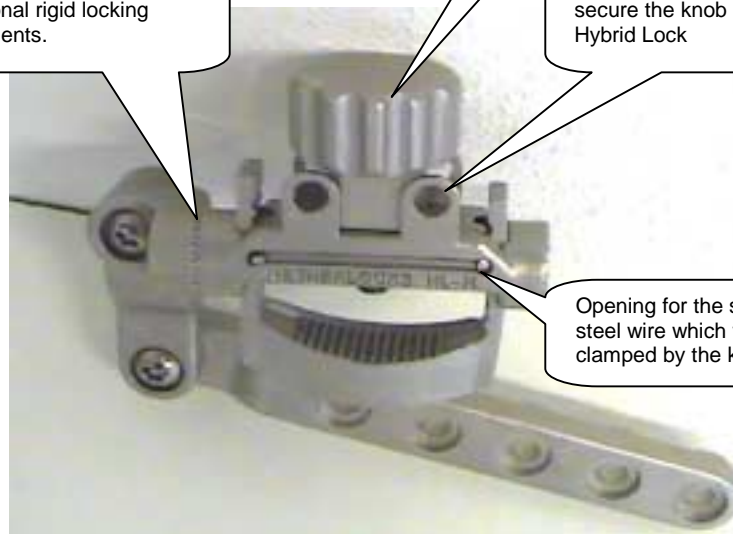
This type is a low cost solution in case sophisticated locking with the lock series Multi Rotation Lock and Ninety Degree Lock is not required. The Hybrid Lock is suitable for locking every type and size of valve in any fixed position. It is easily and quickly installed because adjusting parts are not required. However, the material of the Hybrid Lock is fully stainless steel AISI 316 and therefore ideal for all environments.

The standard delivery occurs with a stainless steel wire or optional with rigid locking elements. The knob of the Hybrid Lock does have holes for padlocks to secure it.



Blocking of a hand-wheel with optional rigid locking elements.

Gear rim to fix the optional rigid locking elements.



Strong stainless steel knob which also can be operated with gloves.

Holes for padlocks to secure the knob of the Hybrid Lock

Opening for the stainless steel wire which will be clamped by the knob



The HL also can be used as a special kind of shackle lock.



GST-Systeme GmbH

Interlock Series MC

Multi Clasp

Description

The lock from the series **Multi-Clasp (MC)** is used for locking of electrical switches and other kind of components with a hole larger than 5 mm. To the strong stainless steel lock body can up to six independent pad-locks with a shackle diameter of 8mm can be attached. There is also enough space allocated for unique coding/tagging.



GST-Systeme GmbH

Alzenauerstraße 21; D - 63517 Rodenbach; Tel.: 49 – (0)6184 – 9507-0; Fax 49 – (0)6184 – 9507-100
E-Mail: Info@gst-systeme.de; Internet: www.gst-systeme.com

Accessories Series CKC

Key Cabinet

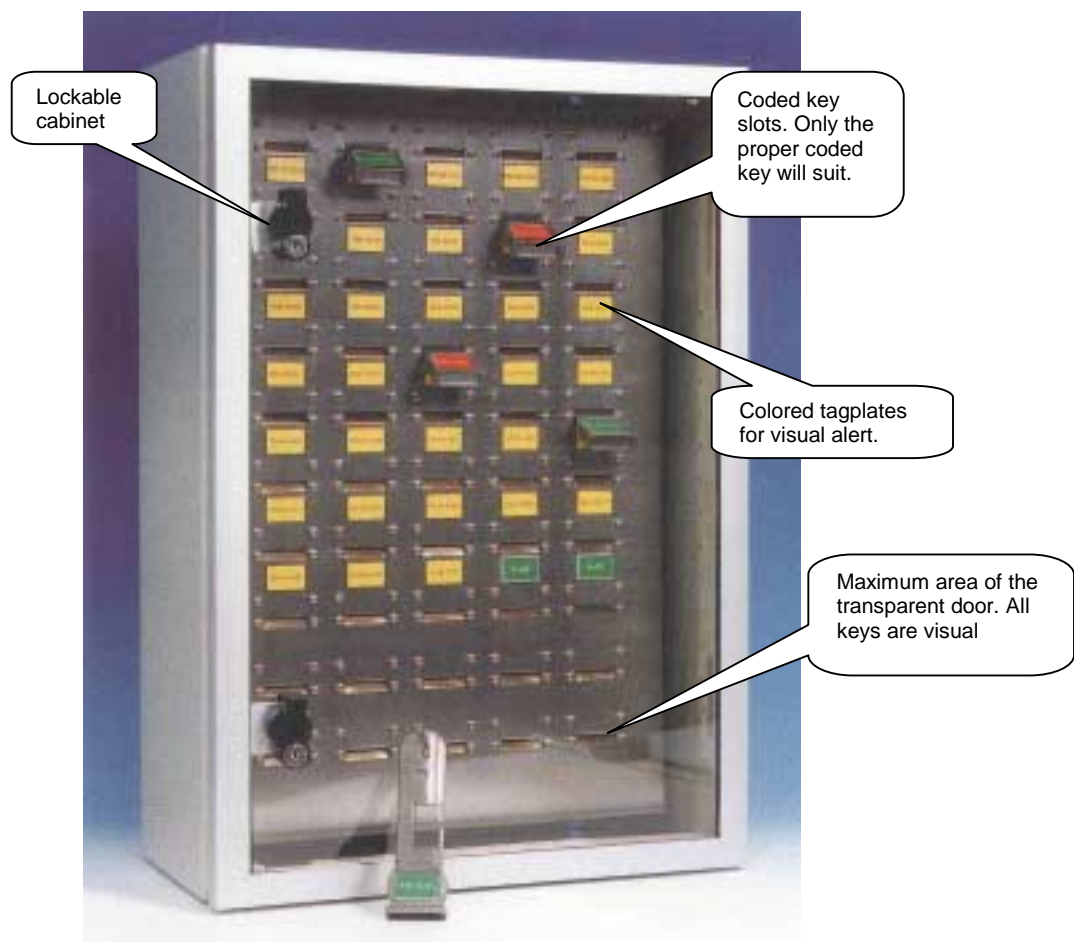
Description

The safety accessories from the series **Compact Key Cabinet (CKC)** is used to keep the start- and end keys of a locking sequence at a safe place. The compact Key Cabinet would be delivered with unique coded key positions. At every key entry a tag plate that indicates all necessary information of which valve or system is active can be placed.

The cabinet has key entries with codes, which are identical to the key codes, so there is no possibility that an operator is able to insert a key in the wrong position. The key is always visible since the cabinet is equipped with a non-combustible transparent door part. The area of the transparent door has been maximised all key tag plates are in visual range.

The cabinet can be supplied with a tag plate, which shows all typical P&ID's. The door is executed with a lock to close the cabinet. No sharp edges are on the cabinet that could injure the operator. The cabinet can be mounted to the wall.

Therefore it is possible to use electrical switches etc. to indicate the key for the process control system.



GST-Systeme GmbH

Alzenauerstraße 21; D - 63517 Rodenbach; Tel.: 49 – (0)6184 – 9507-0; Fax 49 – (0)6184 – 9507-100
E-Mail: Info@gst-systeme.de; Internet: www.gst-systeme.com

Accessories Chain-Wheel & Key-Extension

Description

With this kind of accessories it is possible to integrate inaccessible valves into the locking sequence. The Chain-Wheel is directly fixed with the locks from the series MRL and NDL. The material of the chain wheel is aluminium and the chain stainless steel.

With the Key-Extension it is possible to reconcile the distance between the operator areas to the lock area. The Key-Extension would be delivered in customer specified length. For several different lengths it is possible to use a moveable extension. The material of the grip for the key is stainless steel and for the extension aluminium.

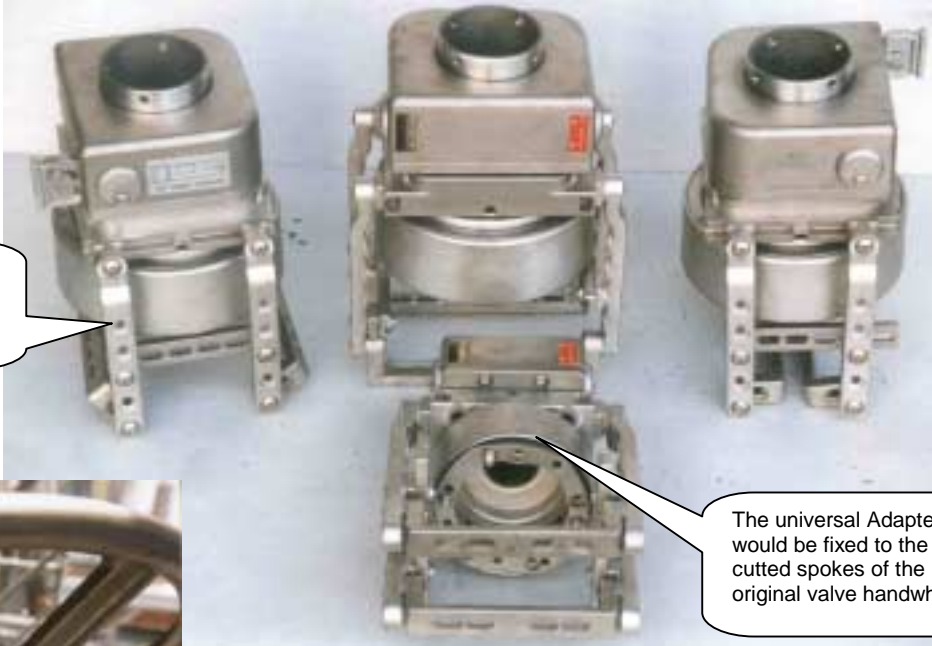


Accessories Universal Bracket and Adapter

Description

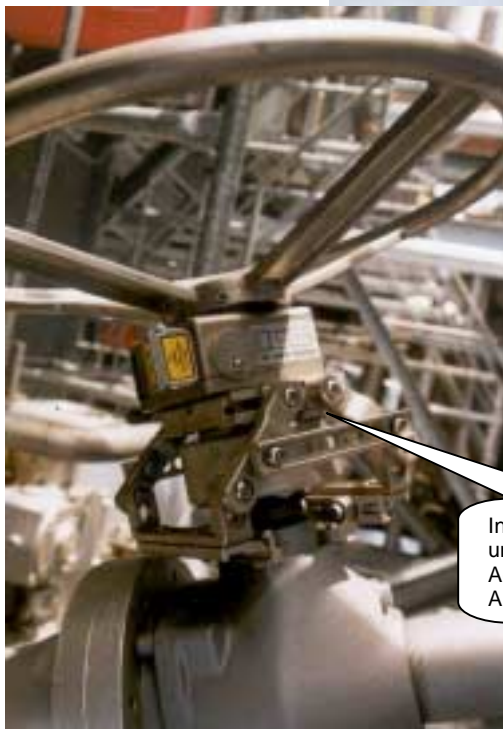
The accessories Universal Bracket and Adapter are used for the interlocking series MRL and NDL. The advantage of this accessories is, only less valve information like hand wheel- and stem- diameter are necessary in opposite of the construction for Custom Made Bracket and Adapter.

The obvious cost advantage shrinks through the additional costs for mounting depending on the mounting time. At the end the price difference between Universal- and Custom Made-Bracket and Adapter is less than ten percent.



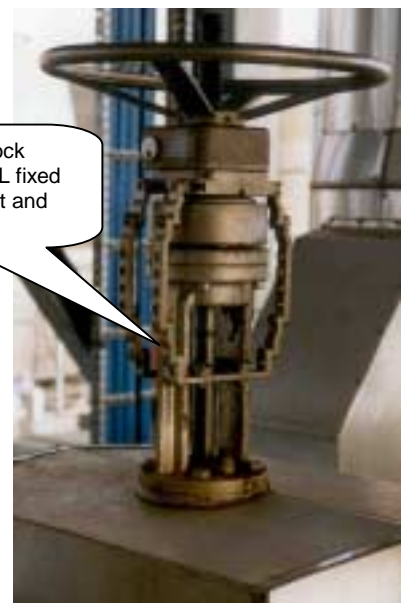
The universal Bracket prevents the turn of the lock against the valve. The swing arms are clamped to the valve body.

The universal Adapter would be fixed to the cutted spokes of the original valve handwheel.



Gatevalve with Interlock from the series MRL-L fixed with universal Bracket and Adapter.

Interlock series MRL with universal Bracket and Adapter mounted on an AUMA Gearbox



With Universal Bracket and Adapter

1

MRL-S 56 / MRL-L 84

spindle

valve

valve-handwheel

Measure 56 mm for MRL-S and 84 mm for MRL-L from the center of the spindle. To determine whether MRL-S or MRL-L is applicable for the valve, use the supplied 'LOIS' or drawing NDUG012. Grind off the spokes of the valve-handwheel in a safe area.

2

cyl. head screw M4

lock-washer M4

cover-ring

adaptor

nut

handwheel

uni-crown

locknut M6

Successively place uni-crown (upside up), handwheel and handwheel-nut. Mount the adaptor with the appropriate number of screws and locknuts M6 (dwg. NDUG013). Place the cover-ring on the adaptor with 3 screws M4x10 + lockwashers.

3

New System- Handwheel

hexagon tool 4mm

setscrew M8

key-code

lock

assembly-pin

cam

U-bracket

hole

adaptor

Mount the New System-handwheel on the lock with 4 setscrews M8. Mount the U-bracket with 4 assembly-pins a6. Insert all keys in the lock. If the key does not fit, check the keycode and rotate the 2 discs as described at point 5 and 6. Place the lock on the adaptor. Be sure that the cams of the lock fall into the holes of the adaptor.

1 GST SYSTEME **Drawn:** JPS **Date:** 29-11-99 **Checked:** **Mounting instructions MRL with U-bracket / U-adapter page 1 of 2** **Drawing:** NDVG011x-b-dwg
COPYRIGHT GST SYSTEME GMBH

4

adjustment-plate

U-bracket

hexagon tool 3mm

U-brace

connection-bar

adaptor

setscrew M6

alternative positions for connection-bar

1 connection-bar

2 adjustment-plate

Attach the lock to the adaptor through the 4 holes in the U-bracket with 4 setscrews M6 or with 8 setscrews for heavy-duty applications. Secure setscrews with Loctite Nutlock 243. For regular gatevalves attach 4 swingarms + adjustment-plates, 2 U-braces and 2 connection-bars to the U-bracket with the appropriate M8 tamper-proof-screws and locknuts. Use drawing NDUG014 for more mounting possibilities of the universal bracket composition.

5

hexagon tool 3mm

adjustment-cover

tamper-proof-screw M6

setscrew M6x6

disc

Adjusting locked closed position: Close the valve with all keys inserted and take the left adjustment-cover from the lock by unscrewing the tamper-proof-screw M6. If necessary rotate the discs until 2 setscrews become visible. Adjust the closed position by fastening the 2 setscrews. If the adjustment is correct, the left (closed) key can be released.

6

hexagon tool 3mm

adjustment-cover

tamper-proof-screw M6

disc

setscrew M6x6

Adjusting locked open position: Open the valve with all keys inserted and take the right adjustment-cover from the lock by unscrewing the tamper-proof-screw M6. If necessary rotate the discs until 2 setscrews become visible. Adjust the open position by fastening the 2 setscrews. If the adjustment is correct, the right (open) key can be released.

Note:
 If the seat of the valve wears with the years and the handwheel can be turned 1 (or more) rotation(s) further, the closed-key can't be released anymore. Then the closed position of the lock has to be readjusted.
Readjustment:
 Take the adjustment-cover from the lock and turn the handwheel until the two setscrews are visible. Loosen the two setscrews and then follow the instructions at point 5 and/or 6.

1 GST SYSTEME **Drawn:** JPS **Date:** 29-11-99 **Checked:** **Mounting instructions MRL with U-bracket / U-adapter page 2 of 2** **Drawing:** NDVG011x-b-dwg
COPYRIGHT GST SYSTEME GMBH

Reference List for Interlocking Systems

Customer

A/S NORSKE SHELL
ABB LUMMUS CREST
ABU DAHBI GAS INDUSTRIE
AGIP
AKER OFFSHORE
AKER ENGINEERING
AMERADA HESS
ARCO
ATOCHEM
AVENTIS
BASELL
BASF Deutschland
BASF Belgium
BASF USA
BASF Spain
BAYER
BP England
BP Deutschland
BP EXPLORATION
BP CHEMICALS
BRITISH GAS
BRV, HI-FAB
BSL
CLARIANT
CHEMVIRON UK
CONOCO
CONOCO UK (B&R)
DEA
D.S.M. Niederlande
D.S.M. Deutschland
DONG-AH - KOREA
DOW
DU PONT
EDELEANU
ERN
G.V.A. - SWEDEN
GASUNIE
HAMILTON BROS
HERCULES
HOECHST
HOLBORN
HOWE BAKER ENG.
I.C.I. AMERICAS
I.C.I. C & P
NPC, IRAN
JOHN BROWN ENGINEERING
KOSA
KRUPP UHDE
KUWAIT OIL
LEWIS OFFSHORE
LINDE
LURGI
MARATHON OIL
McDERMOTT ENG.
MIRO
MOBIL
MOOSGAS
MOSS ROSENBERG
N.A.M.
NOORDGASTRANSPORT
NORSK HYDRO
NORTH SEA PETROCHEMICAL
OCCIDENTAL
OMV
PENNZOIL
PENNZOIL NEDERLAND
PETROLAND
PHILLIPS PETOLEUM
PLACID
ROW
SAGA PETROLEUM
SHELL
SHELL EASTERN PETROLEUM
SHELL EXPRO
SHELL EXPRO
SHELL RAFFINADERI
SHELL UK
SNAMPROGETTI
STATOIL
TECHNIP
TOTAL
TRACTEBEL
UHDE
ULTRAMAR
UOP
VEBA OIL
WINTERSHALL

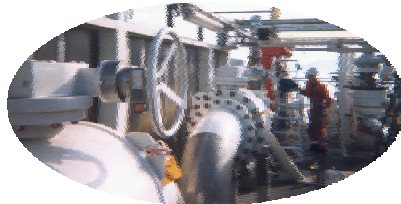
Projects



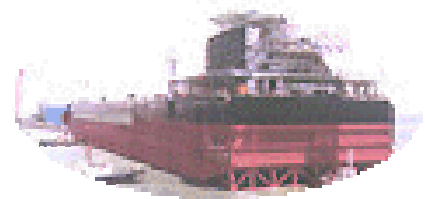
Double PSV system for
Mongtstad Norway



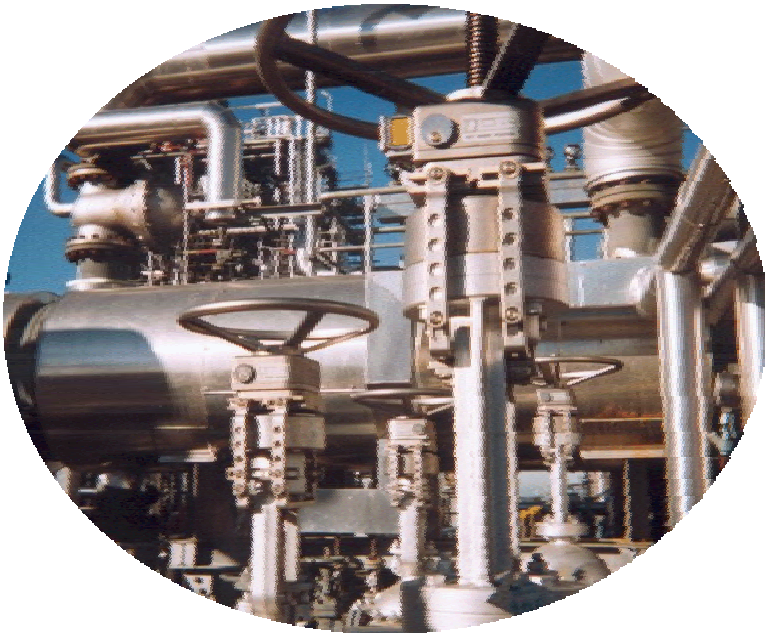
Gullfaks A Platform
Norway



Asgard A FPSO Norway



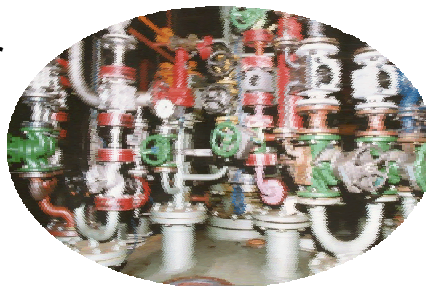
Girassol FPSO Elf Angola



Double PSV system for
DEA Heide Germany



Double PSV system for
Aramco Saudi Arabia



Batch process Hoechst
Germany

GST-Systeme GmbH

Alzenauerstraße 21; D - 63517 Rodenbach; Tel.: 49 – (0)6184 – 9507-0; Fax 49 – (0)6184 – 9507-100
E-Mail: Info@gst-systeme.de; Internet: www.gst-systeme.com

DELIVERY PROGRAM GST-Systeme GmbH

➤ **Our product range consists of:**

- Aerosol / mist - eliminators
- Vane separators
- Multi cyclone separators
- High- pressure / temperature separators / filters
- Gas and oil separators
- Liquid/liquid separators

- Pneumatic, hydraulic, electric valve actuator systems
- Electric heater systems
- Hydraulic power pack systems
- Wellhead control systems
- Injection systems
- Lube oil systems
- Line break systems
- Manifolds

- Gas treatment systems
- Heater systems
- Fuel gas conditioning systems
- Pipeline scraper and sub sea- / handling systems
- Skid mounted units

- Interlocking and safety systems for industrial plants world-wide